

CLAIMS

1. An apparatus for use in a chemical mechanical planarization (CMP) system, comprising:
 - a platen capable of introducing fluid beneath a polishing pad; and
 - a platen support cover configured to surround the platen, the platen being disposed at a first level and the platen support cover being disposed at a second level, the first level being lower relative to the second level, the platen and the platen support cover configured to be disposed below the polishing pad such that the polishing pad is closer to the second level than the first level the platen support cover having a width at the second level, the width being substantially equal around the platen.
2. The apparatus of claim 1, wherein the width being substantially equal is one of a circular shape platen support cover that enables substantially uniform distribution of fluid pressure escaping between the platen support cover and the polishing pad.
3. The apparatus of claim 1, wherein a recessed region is defined between the platen, the platen support cover, and beneath the polishing pad.
4. The apparatus of claim 3, wherein the platen introduces fluid into the recessed region.
5. The apparatus of claim 1, wherein a substrate is capable of being applied over the polishing pad and over the platen.

6. The apparatus of claim 4, wherein at least one fluid output control path is defined through the platen support cover at a wall location defined between the first level and the second level, the at least one fluid output control path enabling controlled release of fluid contained over the platen, surrounded by the platen support cover, and beneath the polishing pad.

7. The apparatus of claim 4, wherein at least one fluid output control path is defined through the platen support cover at a location on the surface of the second level, the at least one fluid output control path enabling controlled release of fluid contained over the platen, surrounded by the platen support cover, and beneath the polishing pad.

8. The apparatus of claim 6, further comprising:

a unit for monitoring processing of the substrate when applied to the polishing pad; and

a mechanism for adjusting the at least one output control path to enable a change in rate of the fluid being released from the recessed region.

9. The apparatus of claim 1, wherein one or both of the platen support cover and the platen is capable of vertical movement, wherein the vertical movement is toward and away from the polishing pad.

10. The apparatus of claim 9, wherein the movement is driven by an adjuster.

11. The apparatus of claim 1, wherein the first level and the second level is relative to a vertical distance from the polishing pad.

12. The apparatus of claim 6, wherein the at least one fluid output control path is replicated a number of times around a periphery of the platen support cover.

13. An apparatus for use in a chemical mechanical planarization (CMP) system, comprising:

a platen;

a platen support cover configured to surround the platen, the platen being disposed at a first level and the platen support cover being disposed at a second level, the first level being lower relative to the second level, the platen and the platen support cover configured to be disposed below a polishing pad such that the polishing pad is closer to the second level than the first level; and

at least one fluid output control path defined through the platen support cover, the at least one fluid output control path enabling controlled release of fluid contained over the platen, surrounded by the platen support cover, and beneath the polishing pad.

14. The apparatus of claim 13, wherein the at least one fluid output control path is defined through the platen support cover at a wall location defined between the first level and the second level.

15. The apparatus of claim 13, wherein the at least one fluid output control path is defined on the surface of the platen support cover on the second level.

16. The apparatus of claim 13, wherein a recessed region is defined between the platen, the platen support cover, and beneath the polishing pad.

17. The apparatus of claim 13, wherein the platen introduces fluid into the recessed region.

18. The apparatus of claim 13, wherein a substrate is capable of being applied over the polishing pad and over the platen.

19. The apparatus of claim 13, further comprising:
a unit for monitoring processing of the substrate when applied to the polishing pad; and
a mechanism for adjusting the at least one output control path to enable a change in rate of the fluid being released from the recessed region.

20. The apparatus of claim 19, wherein the monitoring processing includes obtaining data from one or more sensors.

21. The apparatus of claim 20, wherein each of the one or more sensors includes one of an eddy current sensor, a distance sensor, a laser sensor, a heat sensor, a pressure sensor, and a polishing rate removal sensor.

22. The apparatus of claim 13, wherein the platen support cover is one of a circular, half circular, rectangular, octagonal, hexagonal, and oval shape that provides uniform distribution of fluid pressure escaping beneath the polishing pad.

23. The apparatus of claim 13, wherein one or both of the platen support cover and the platen is capable of vertical movement, wherein the vertical movement is toward and away from the polishing pad.

24. The apparatus of claim 23, wherein the movement is driven by an adjuster.

25. The apparatus of claim 13, wherein the first level and the second level is relative to a vertical distance from the polishing pad.

26. The apparatus of claim 13, wherein the at least one fluid output control path is replicated a number of times around a periphery of the platen support cover.

27. The apparatus of claim 13, wherein the platen support cover extends to an area beyond the area directly beneath a retaining ring of a carrier head configured to be positioned above the platen and the polishing pad.

28. The apparatus of claim 27, wherein the platen support cover has area directly beneath a retaining ring of a carrier head configured to be positioned above the platen and the polishing pad.

29. The apparatus of claim 16, wherein a retaining ring restricts pressure in the recessed region above the platen and below the polishing pad.

30. A method for controlling pressure beneath a polishing pad, comprising:
defining a fluid volume under the polishing pad at a location where a substrate is to be applied over the polishing pad; and
controlling output of a fluid from the fluid volume when the substrate is applied over the polishing pad.

31. The method of claim 30, further comprising:
monitoring processing of the substrate when applied to the polishing pad.

32. The method of claim 31, wherein the monitoring includes,
measuring one or more of a gap under the polishing pad and a thickness of a material on the substrate being applied to the polishing pad.

33. The method of claim 31, further comprising:
determining a removal rate of a material on the substrate being applied to the polishing pad.

34. The method of claim 33, further comprising:
based on the determined removal rate, adjusting the output of the fluid from the fluid volume to change a pressure beneath the polishing pad.

35. The method of claim 30, wherein the fluid volume under the polishing pad defines a gap.

36. The method of claim 30, wherein the gap is adjustable.